



Current Coal Issues Facing Indiana Utilities

Presentation to the
Indiana Utility Regulatory Commission

Tuesday, July 1, 2008

Presented by: The logo for the Indiana Energy Association. It features the word "Indiana" in blue, followed by "ENERGY" in a larger, bold, blue font. Below "ENERGY" is the word "Association" in a smaller blue font. A yellow swoosh underline is positioned beneath the word "ENERGY".

Speakers

- **Vince Stroud**

Duke Energy, Vice President, Regulated Fuels

- **Charles Zebula**

American Electric Power, Senior Vice President,
Fuel Emissions & Logistics

- **Randy Beck**

Vectren, President, Vectren Fuels

- **Daniel Vaughn**

Director, Coal Services, ICAP United, Inc. - Coal

Vince Stroud

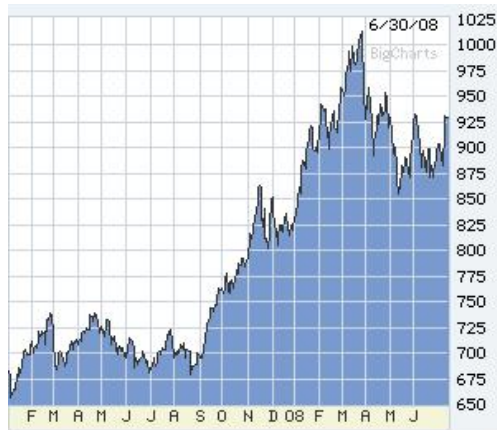
Global Coal Market

Update

Vince Stroud
V.P. Regulated Fuels

Global Commodity “Super Cycle”

Gold (\$ / oz)



Natural Gas (\$ / mmBTU)



Corn (cents / bushel)



Wheat (cents / bushel)



Soybean (cents / bushel)



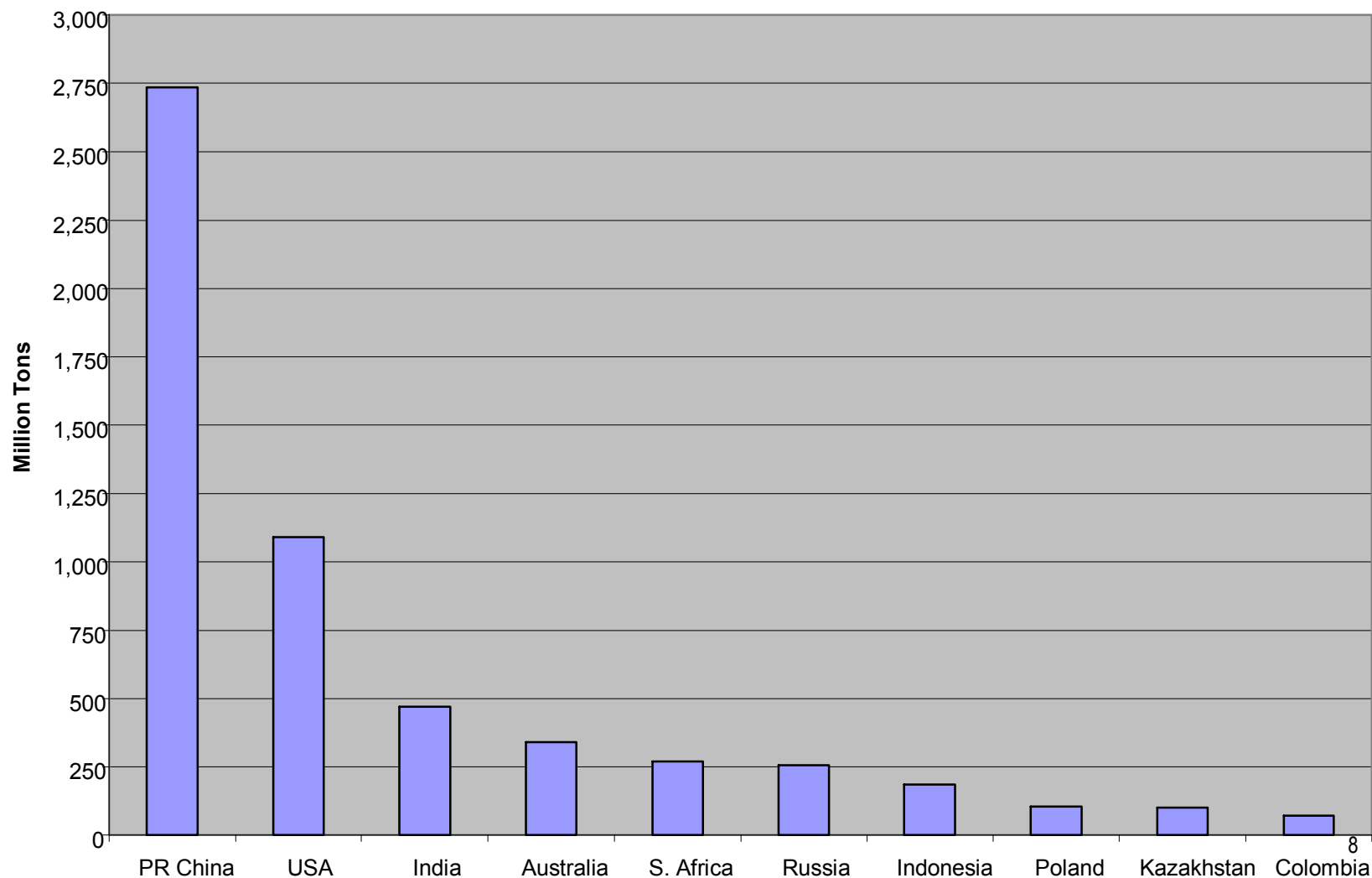
Nymex Crude (\$ / barrel)



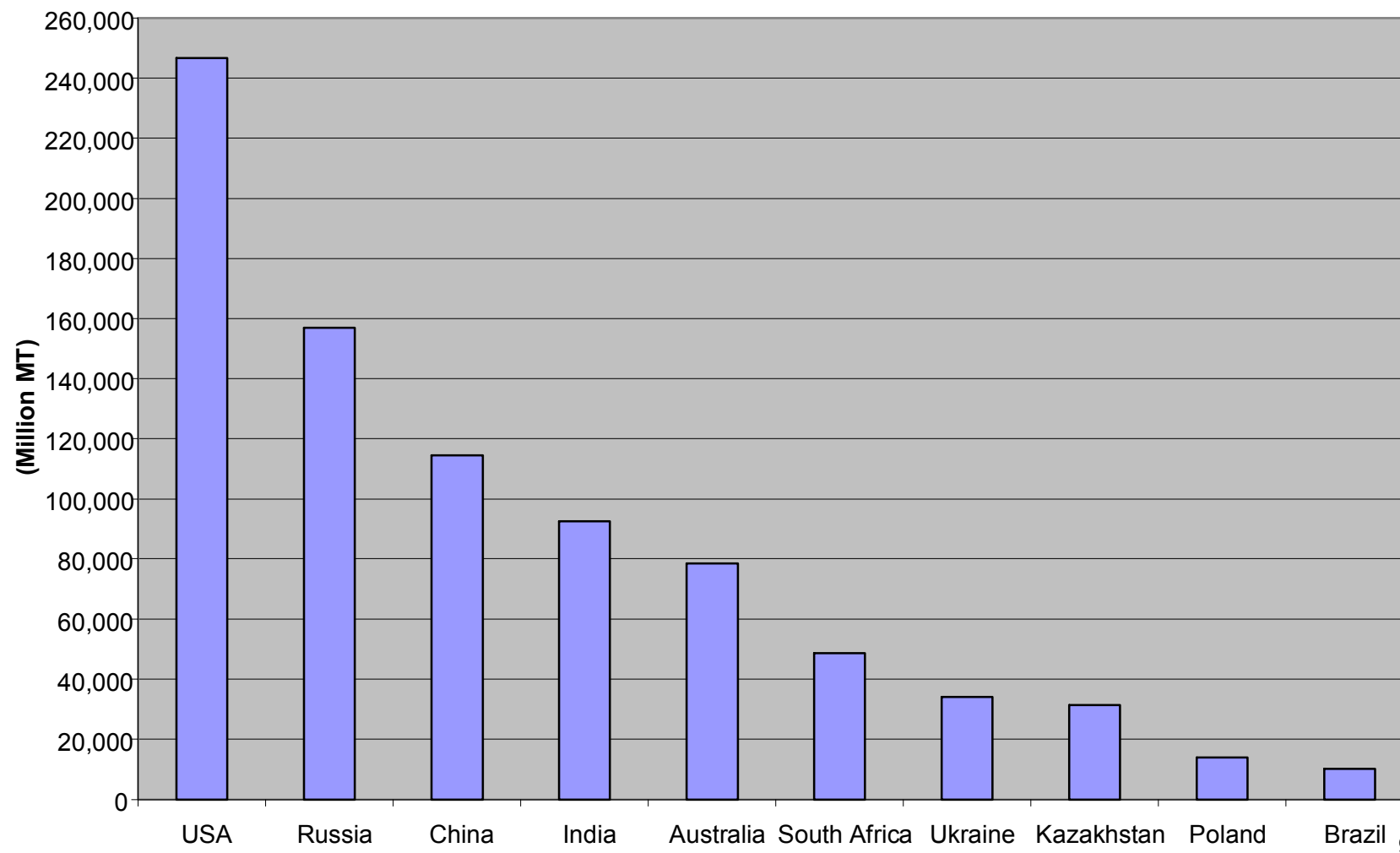
GLOBAL COAL MARKET FUNDAMENTALS

- Primary drivers for increasing coal prices are:
 - Increasing global demand for coal....particularly Asia
 - Disruption of international coal supplies....Australia and South Africa
 - Dramatic increase in east coast US coal exports into much higher priced European markets
 - Declining eastern US coal production....particularly Central Appalachia
- Rapidly increasing mining costs....high petroleum and steel costs, growing demand for labor, declining mining productivity in the east, and increasing safety and environmental costs
- Although it is still too soon to determine if these drivers represent longer term market changes, they are likely to keep strong pressure on coal market conditions and prices for at least the next two to three years

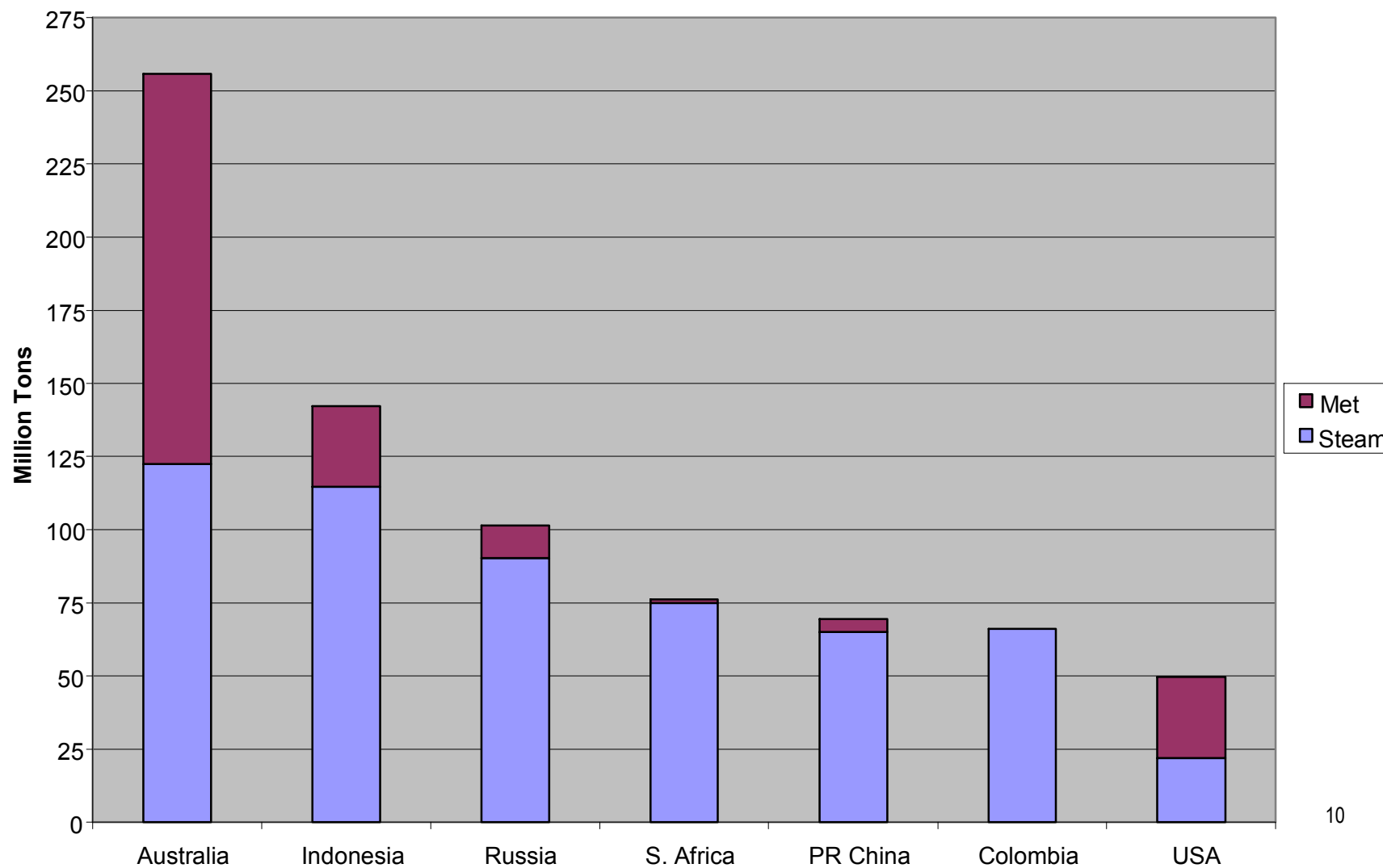
Top Coal Producing Countries - 2006



Global Recoverable Reserves



Top Coal Exporting Countries



Typical Export Coal Flows



Global Supply Disruptions



Flooded Dragline in Queensland, Australia — Jan 2008

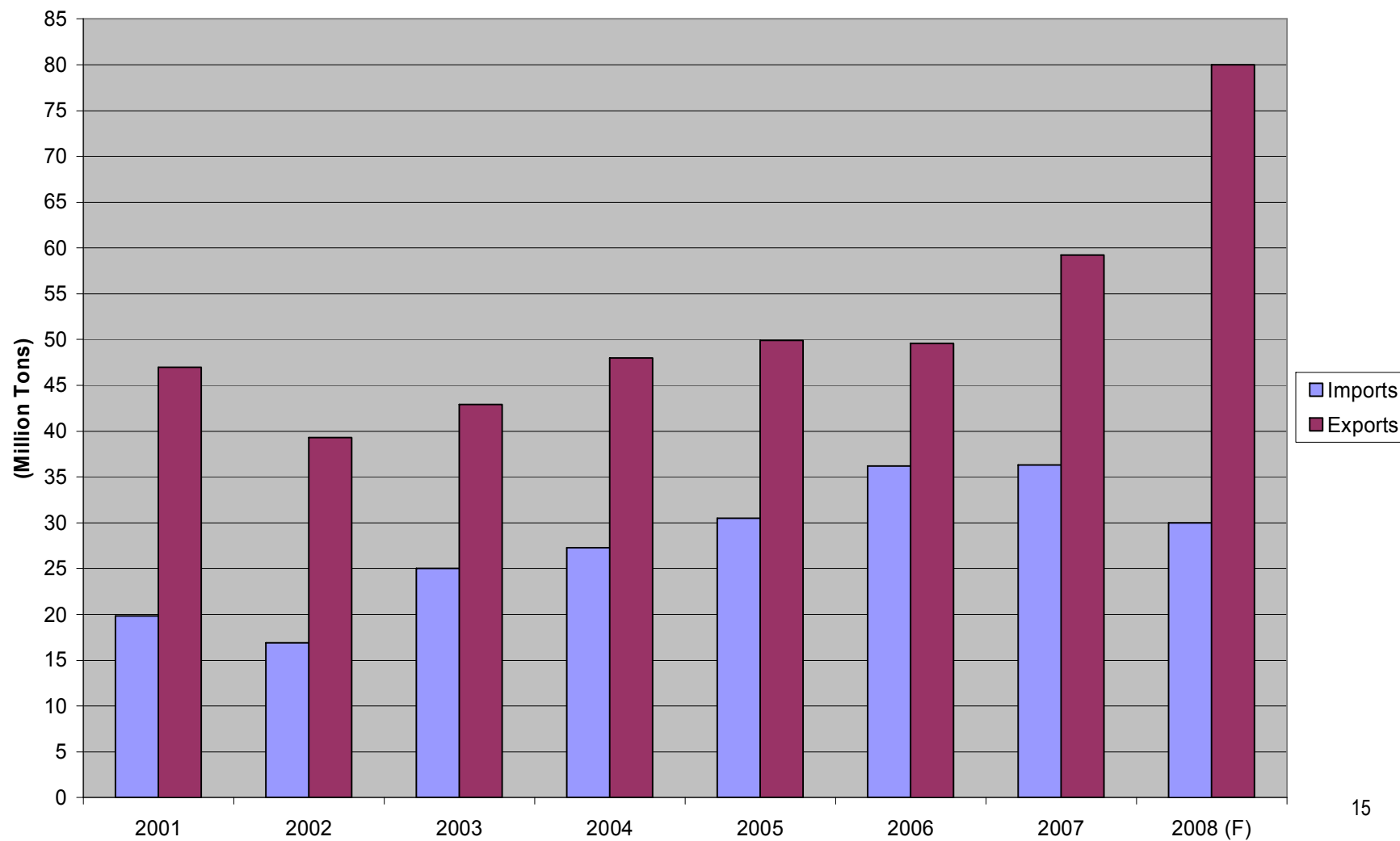
GLOBAL COAL SUPPLY DISRUPTIONS

- Australia – World's largest coal exporter
 - Floods have caused coal producers to declare Force Majeure on shipments (approx 10 Mt in Jan 2008)
 - Port delays at Australia's main coal export terminal at Newcastle has wreaked havoc on global shipping markets
- China – World's largest producer and consumer
 - China became a net importer of coal in 2007
 - China had the most severe winter in 50 years with millions without heat and water
 - Unusually heavy snowfalls disrupted transportation networks leading to shortfalls of coal used to generate 75% of China's electricity
 - Government ordered a suspension of coal exports through March 2008

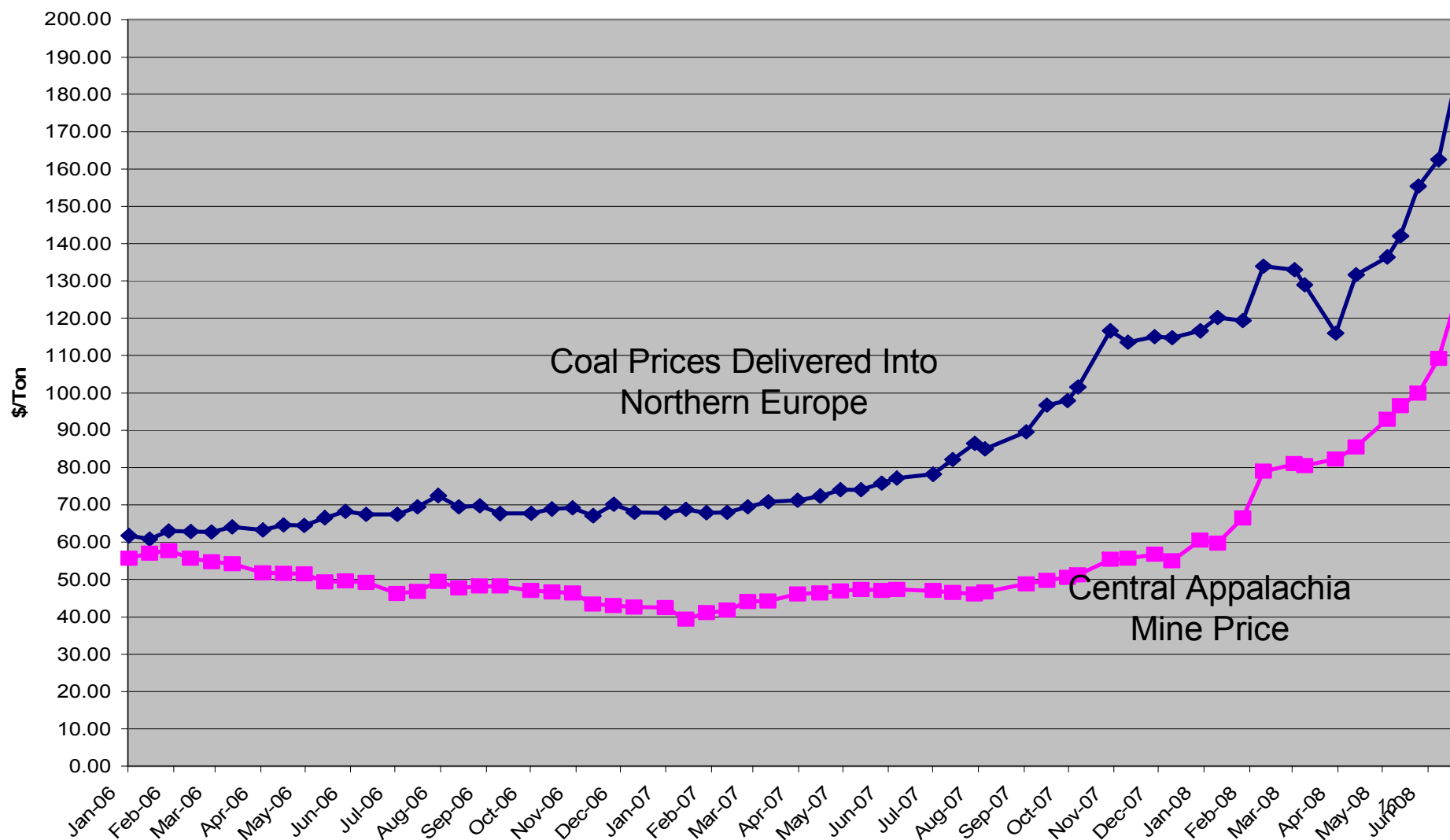
GLOBAL COAL SUPPLY DISRUPTIONS

- South Africa
 - Chronic power shortages moved to crisis proportions in January 2008 when the national power provider had to shed 4,000 megawatts forcing force majeure conditions for the utility's 138 largest customers, including the coal mines
 - South Africa is expected to fast-track new generating stations which will shift more of its coal production to domestic usage
- USA - 2008 US coal exports are projected to increase 30 to 50 million tons over 2006 totals

U.S. Coal Import/Export Balance



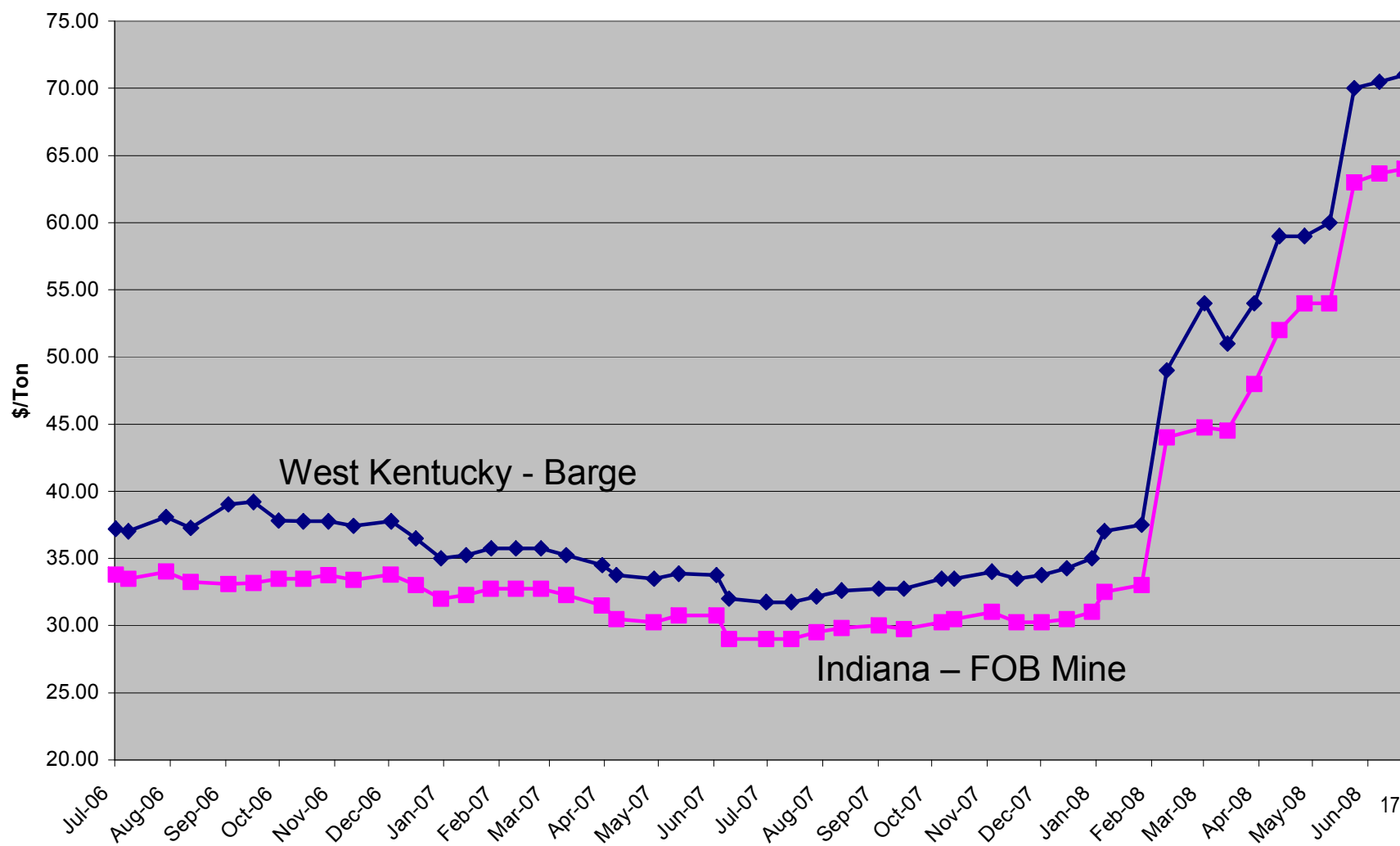
RECENT COAL MARKET PRICES – EUROPE AND U.S.



Illinois Basin Coal Prices



11,200 Btu/lb, 4.5# SO₂



Global Coal Market Update - Summary

- Explosive growth in international coal markets, especially in Asia, underscores the shortage of energy around the globe
- Pacific Rim's and South African net exports to decline due to severe supply constraints in traditional coal exporting nations
- Coal production declines in Europe – large switch from domestic to imported coal
- U.S. expected to increase exports while import levels decline

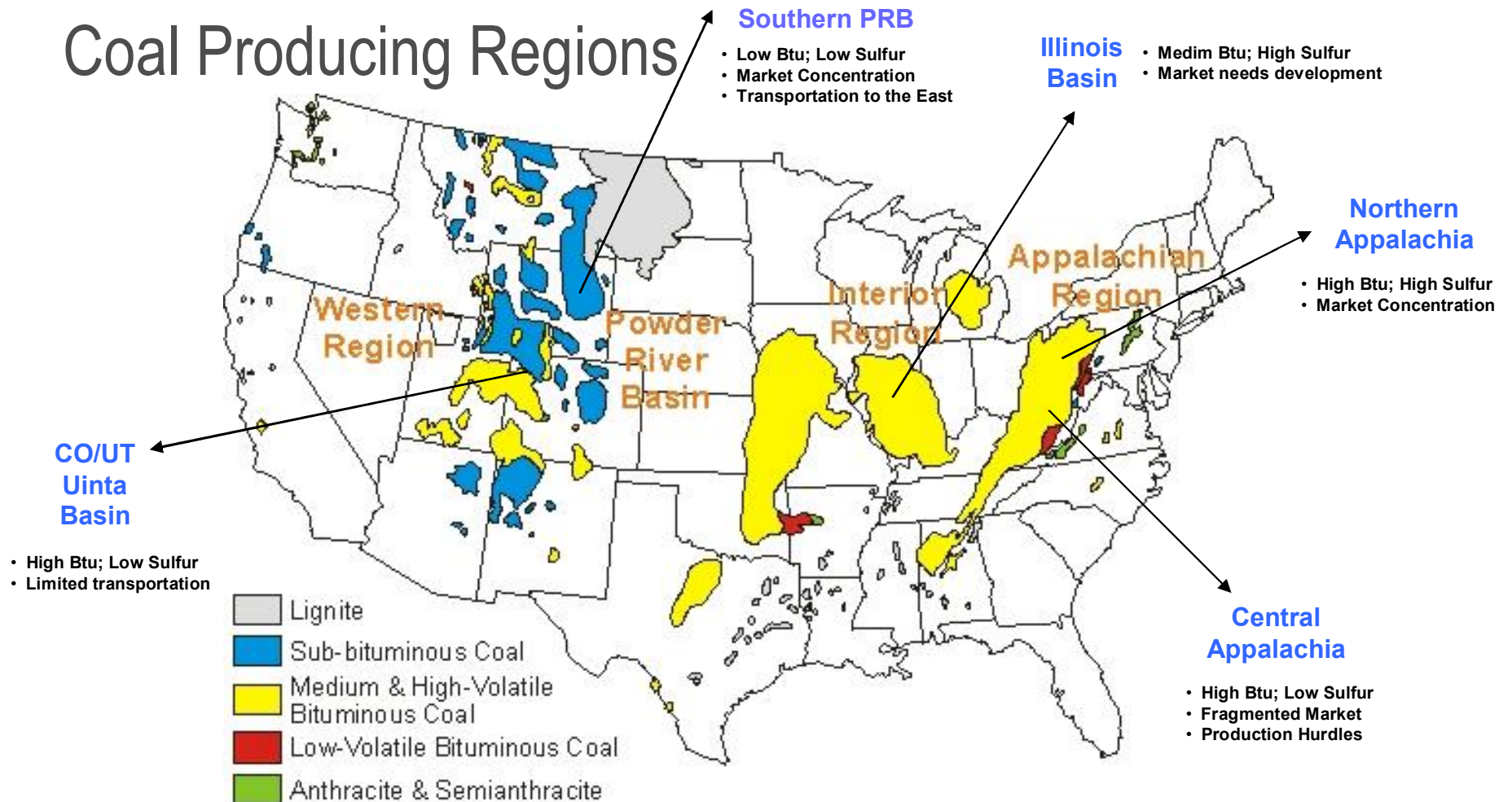
Global Coal Market

Update

Vince Stroud
V.P. Regulated Fuels

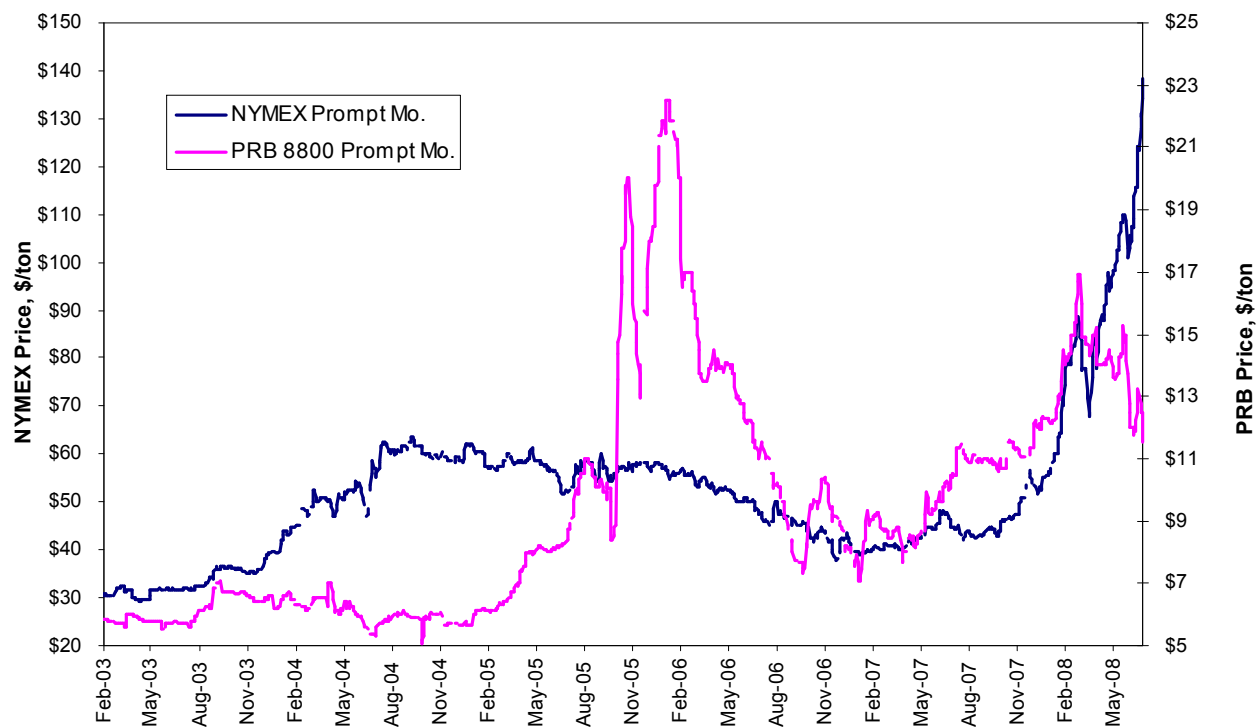
Charles Zebula

Coal Producing Regions



Coal Market Discussion

- Prices for all coal products have risen dramatically Worldwide steam and metallurgical coal demand strong
- Weather and infrastructure events have “tipped” the scale
- Weak dollar has made US coal attractive
- High-BTU domestic coals travel well as substitute met/steam products

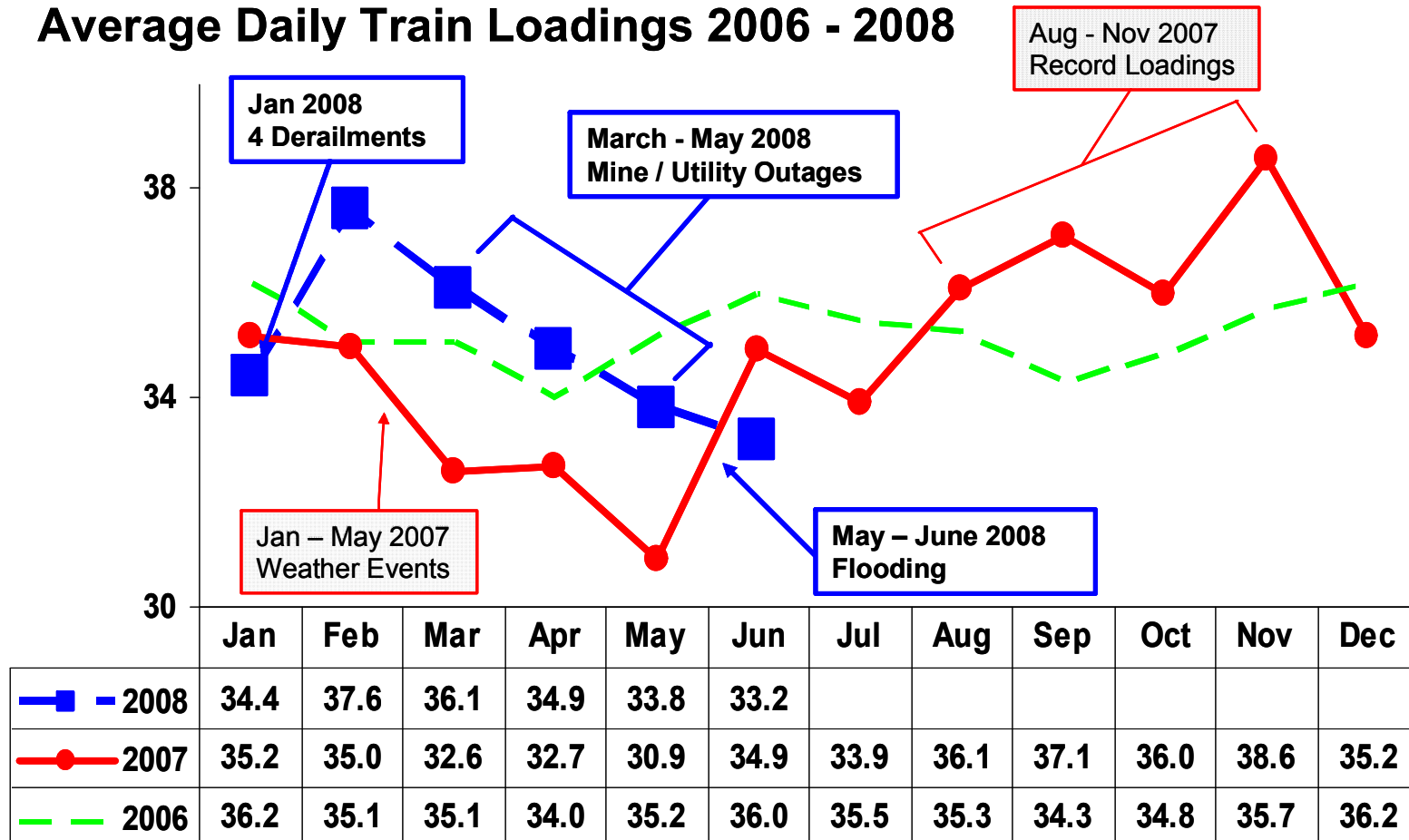


PRB Coal – Abundant Supply

- Increasing production; Increasing demand
 - PRB coal continues to move into Eastern US (including AEP)
 - Most new plant capacity in the West/South will burn PRB
- Supplier Costs increasing
 - Suppliers beginning to compete for the same reserves increasing lease costs – BLM has turned down bids, stating that the offered amount was not enough
 - Fuel and explosive costs remain high
 - Equipment, materials and labor are in short supply
 - Mining ratios continue to rise – increasing the mining costs
- Basin Issues
 - Consolidation has left only 4 major suppliers – Arch, Foundation, Peabody and Rio Tinto
 - Rio Tinto's US Coal operations are currently for "SALE". This could lead to a new producer in the basin.
 - Coal companies now facing "Wall Street" demands
- Limitations in Transportation

Rail Transportation*

UPRR Coal Operations - SPRB Average Daily Train Loadings 2006 - 2008

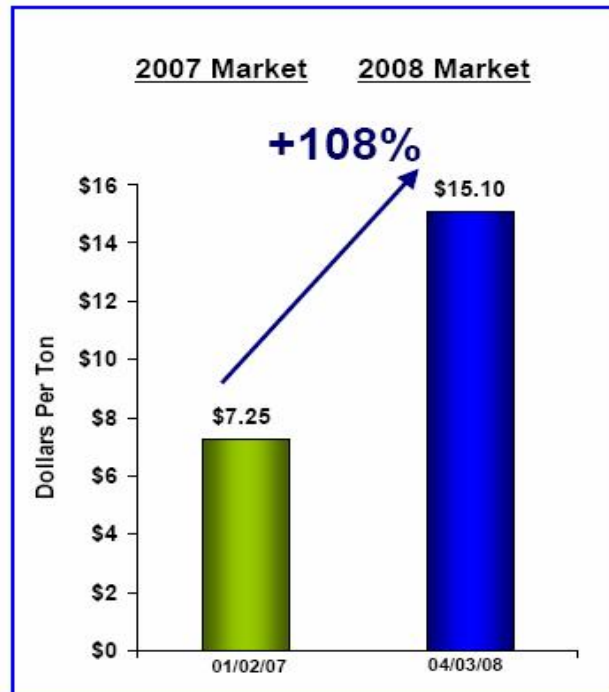


*Slide from Union Pacific

Peabody

PRB Markets Strengthen from Pull of Exports and Domestic Growth

OTC PRB 8800 Prices



- PRB pricing more than doubles in one year
- Peabody has the best U.S. volume leverage over next several years
- Unpriced U.S. volumes:
60 - 70 Million for 2009
120 - 130 Million for 2010
- Signing new premium PRB business 37% above 2007 realized prices

Source: Industry estimates for PRB 8,800 2009 delivery. Updated May 2, 2008. Unpriced U.S. volumes as of April 22, 2008 earnings release.

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* Slide from Peabody Investor Presentation

Coal Markets*

Peabody

International Markets Create Major Flow-Back Opportunities

API 2 (Implied Delivered to Europe, per tonne): \$140.00

Implied CAPP Price at East Coast Port (ton): \$108.50

	CAPP	NAPP
Netback	\$82.00	\$88.10
Market	\$93.63	\$99.00

Lower/Upper Ohio River Plant Netback to...

	(Unscrubbed) PRB	(Scrubbed) Illinois
Netback FOB \$/Ton	\$26.95	\$84.95
Current Price	\$15.10	\$66.00
OPPORTUNITY	\$11.85	\$18.95

Source: Index prices for Cal'09 and Peabody analysis. Assumes PRB 8,800 Btu 0.8 lb. SO₂; Illinois 12,000 Btu 5.0 lb. SO₂; transportation to Upper Ohio River of \$42/ton, \$10/ton and \$6/ton for PRB, Illinois and CAPP, respectively. Updated May 7, 2008.

* Slide from Peabody Investor Presentation

Appalachian Coal

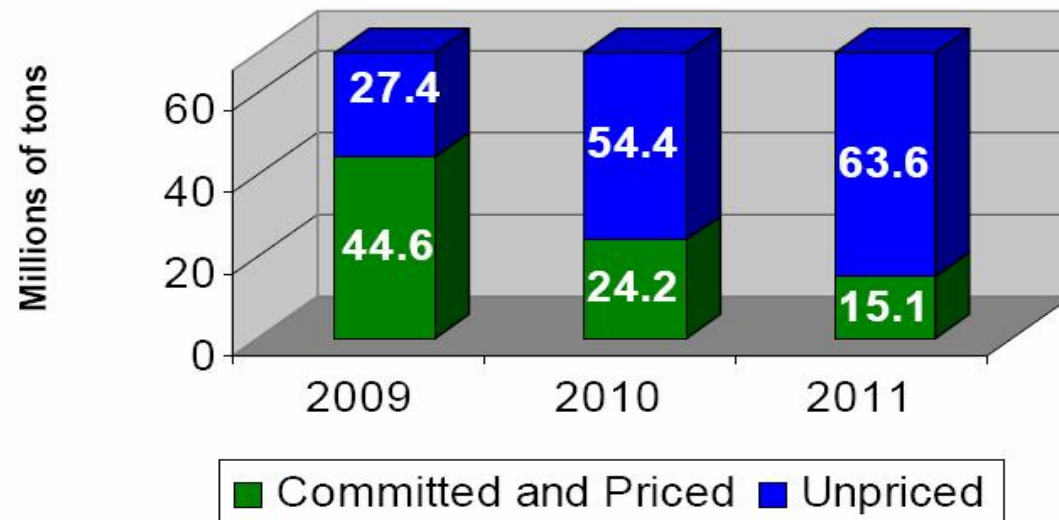
- Central Appalachia (Southern WV, east KY, VA)
 - High quality coal
 - Production declining
 - 234 million tons (2005)
 - 217 million tons projected this year, but may rebound due to high pricing and export potential
 - Limited sources due to dwindling reserves
 - High production costs – Miner's Act
 - Permitting/mountain top mining and labor issues
 - Fragmented market participation
- Northern Appalachia (Western PA, northern WV)
 - Pittsburgh Seam Coal
 - Concentrated Market (Consol Energy dominant)
 - High cost of entry for new reserves
 - Production stable (about 140 million tons)

Coal Markets*



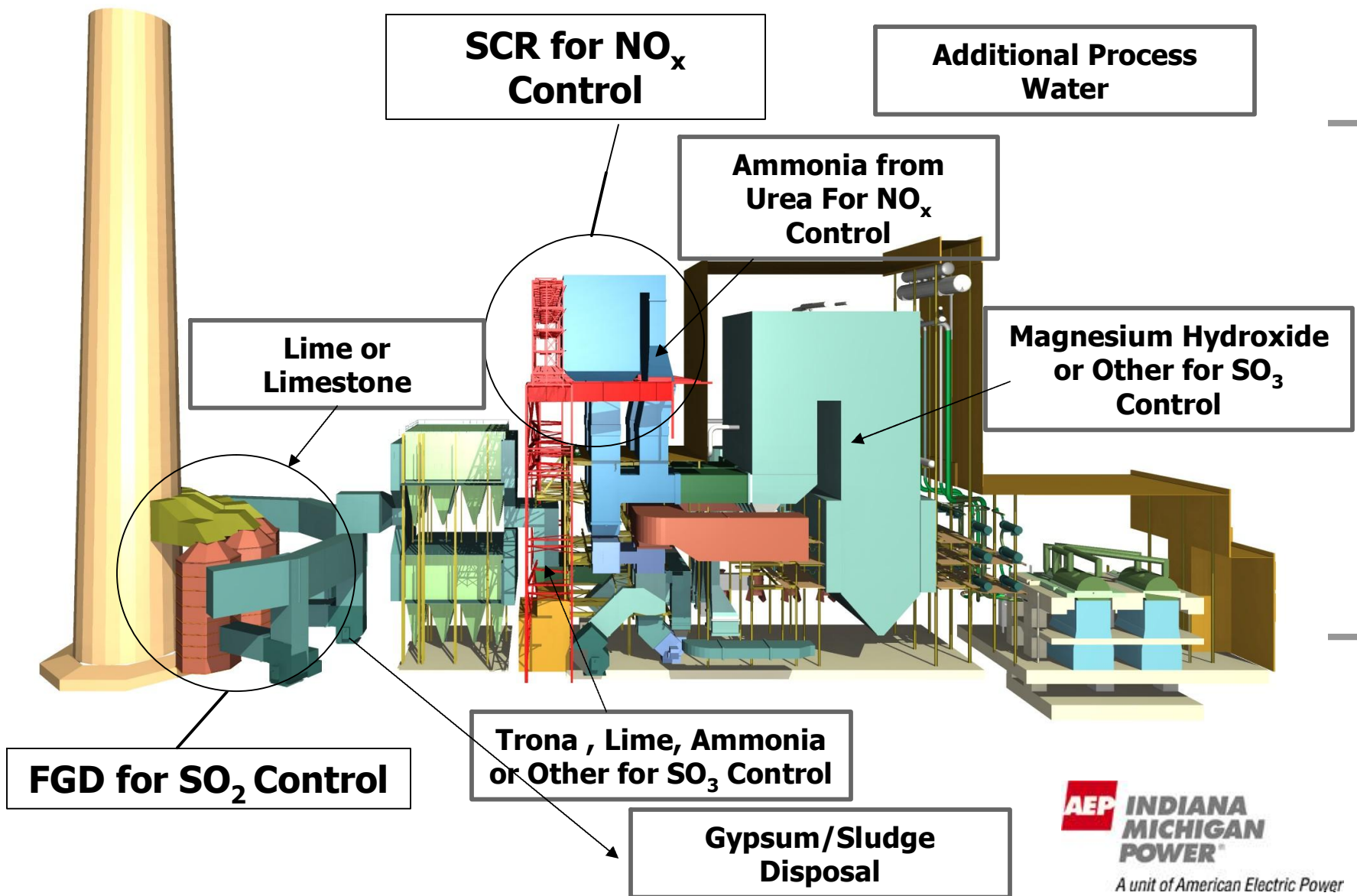
Ability to Capitalize on Higher Pricing

(mm of Tons)	<u>2009</u>	<u>2010</u>	<u>2011</u>
Production Guidance	70 – 74	76.6 – 80.6	76.7 – 80.7



* Slide from CONSOL Investor Presentation

Pulverized Coal Unit Today Showing Retrofits & New Feedstock(s)



Randy Beck

MSHA Regulations, Labor & Permitting



IURC
Presentation

July 1, 2008

Randy Beck,
Vectren Fuels

Industry Events

- Mine safety has been one of the most prominent issues facing the coal industry due to a series of highly publicized mine tragedies in the past couple of years.
- Since the beginning of 2006, tragic accidents at Sago, Darby and Crandall Canyon alone claimed 27 lives.

MINER Act

- This led to congressional passage of the Mine Improvement & New Emergency Response (MINER) Act that has created a regulatory climate that is difficult to manage.
- In response to Congressional pressure, MSHA initially turned their focus to mine seals due to their suspected role in the Sago fatalities.
- Confusion within MSHA resulted in mine seal policies which were moving targets –
 - Construction standards
 - Inlet vs outlet air courses
 - Date of construction
 - Seal strength; psi
 - Explosive mix vs non-explosive
 - Presence of ignition source,
- Numerous mines have been cited for alleged construction defects in mine seals, resulting in weeks of lost production due to idling and/or relocation of mining units.





MSHA Rules & Initiatives

Subsequent to the MINER Act passage policies continued to evolve and change with new rules and initiatives becoming somewhat the norm. These include but are not limited to the following:

- Post accident breathable air – a February 2007 MSHA bulletin changed requirement of 2 hrs of breathable air per man to 96 hours of post accident breathable air.
- Zero roof falls - In response to the Crandall Canyon accident & investigation, MSHA implemented a 'Zero Roof Fall' initiative January 03, 2008.
 - Minor roof falls can lead to unit downtime and implementation of costly roof control measures
 - This includes supplemental roof bolting and timbering.
 - Besides increasing roof control costs, the additional bolting slows down the mining process with continuous miners waiting on bolters.

- Respirable dust - During a meeting in late March 2008 between MSHA and the mining industry, MSHA announced that respirable dust was the next area in which they were going to commit additional resources.
 - Dust sampling efforts have subsequently been stepped up by MSHA with modifications that include:
 - Reduction in allowable dust levels.
 - Implementing sampling methods which contradict approved ventilation plans.
 - The proposed S-Miner Act, once passed into law, will call for reductions in respirable dust that will likely result in the closure of some underground mines.
- 20 ft cut waiver – a June 2008 procedural letter issued by MSHA is redefining 20 ft cut sequence for new units, reportedly to reduce respirable dust; however, NIOSH studies do not support this. Productivity impact up to 20%.

Cost of MINER Act & S-MINER Act

- The cumulative impact on the mining industry has been considerable in both time and financial resources. Estimates show mine operating costs up \$3.00 to \$4.00/ton.
- Compliance with the Act has affected every underground coal mine in the nation and has led to more than \$250 million in safety investments, with further expenditures to come in the years ahead as new safety technology becomes available.
- The Congressional Budget Office (CBO) estimated the cost of the 2006 MINER Act at \$125 million. The National Mining Association (NMA) estimates actual costs for the nation's underground mines nearer to \$400 million.
- MINER Act compliance required such things as additional SCSR's, lifelines, additional gas detectors, tethers, back-up communication systems, tracking systems, refuge chambers.
- The S-MINER Act which will undoubtedly gain Congressional approval in 2009 will cost an estimated \$1.08 billion according to the CBO.
- Rules to be finalized by MSHA this year will raise operating costs even higher than levels projected last year and the additional requirements alone could surpass the NMA cost estimate for the MINER Act.
 - This includes such things as mine rescue team equipment, conveyor belt flammability, fire protection, belt air, refuge alternatives.
- In addition, the agency now restricts circumstances under which operators can request conferences which has led to more protracted and expensive litigation.



MINER Act Compliance Cost

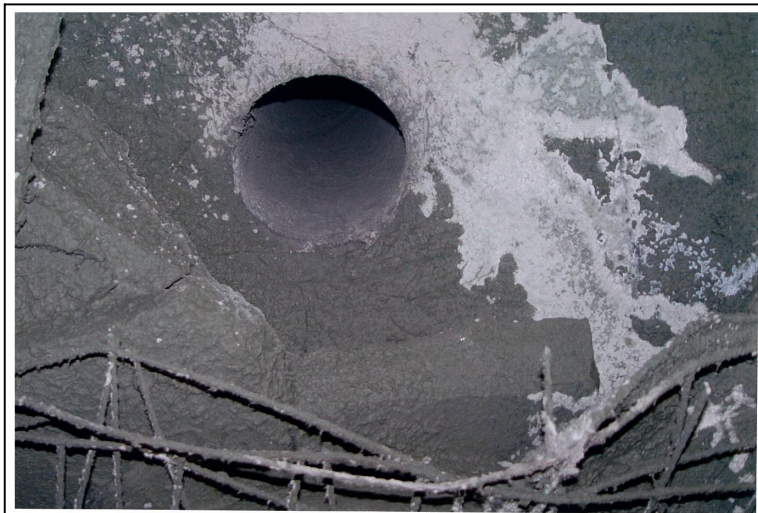


The following costs represent typical amounts for mines producing 2.5 million tons/year: .

Cost of Compliance	Amount
▪ SCSRs	\$ 735,000
▪ Lifelines	\$ 45,000
▪ Multi-gas detectors	\$ 45,000
▪ Tethers	\$ 5,000
▪ Safe room	\$ 140,000
▪ 2 nd communication system	\$ 60,000
▪ Mine seals:	
• Construction & inerting	\$ 620,000
• Productivity losses	\$ 710,000
▪ SCSR resistance training devices	\$ 5,000
▪ Wireless two-way communication system	\$ 200,000
▪ Tracking system	\$ 225,000
▪ Refuge chambers	\$1,050,000
▪ Mine rescue equipment	\$ 165,000
▪ Fire resistant conveyor belting	\$ 600,000
▪ Increase in amounts levied for citations	\$ 200,000
▪ Legal fees	\$ 75,000
Total Amount	\$4,880,000

In addition to above costs, initiatives such as the Zero Roof Fall policy can result in changes in roof control mandates causing increases ranging from \$1.00/ton to nearly \$3.50/ton.

- Pictured at right are underground emergency shelters or safe rooms constructed at Vectren's Prosperity Mine in a centralized area accessible by all units.
- The shelter is located along side (300 ft below) a county road in the event emergency drilling is required.
- The shelter is made of double concrete blocks with self-sealing man doors and double air locks.
- There are two shelters each 18' x 50' and can accommodate 70 miners for 7 days.
- Fresh air is pumped from the surface through an 8" borehole into one room with the other connected by piping.
- Provisions include water, self-rescuers, first aid kits, food, sanitary supplies & telephone communication.
- Cost to construct exceeded \$140,000.



2006 Workplace Fatalities

- Coal is receiving a disproportionate amount of scrutiny and is under constant attack from critics of mine safety efforts.
- Coal's foremost critic and sponsor of the S-MINER Act is California Congressman George Miller. NMA opposes this bill which will only detract the industry from implementing the comprehensive provisions of the MINER Act.

2006 Fatal Injuries by Industry Sector

1	Construction	1,226
2	Transportation/Warehousing	832
3	Agriculture, Forestry & Fishing	646
4	Government	501
5	Professional/Business Service	449
6	Manufacturing	447
7	Retail trade	351
8	Leisure and hospitality	252
9	Wholesale trade	217
10	Educational/Health Services	172
11	Oil and Gas, Mineral Mining	143
12	Financial activities	122
13	Repair and Maintenance	110
14	Persona services, professional/religious org.	65
15	Information	64
16	Utilities	52
17	Coal mining	47
Total fatalities		5,696

Labor Shortage & Workforce Development

- While the resurgence in IB coal production is welcome, the current shortage of coal industry workers will be compounded by the need to hire thousands of miners over the next 5 years.
- Indiana's coal fields are faced with a shrinking work force caused by the looming retirement of many older workers.
 - Baby boomers make up half of the total energy work force and are becoming eligible for retirement.
 - A whole generation of miners are missing because of strict government regulations and very weak demand for coal beginning in the 1980's.
- Workforce development is a key issue facing the mining industry today.
- In response to this need Vincennes University, the Indiana Dept of Labor and the mining industry formed a cooperative partnership to develop a miner training program.
- Likewise the West Virginia Coal Association is collaborating with high schools, State Board of Education and technical college system to attract more students to mining programs.
- Some progress, however, this is a long-term challenge facing the industry ~ coal producing states must follow the lead of Indiana and WV to attract students.
- Mining companies will find it necessary to offer incentives to attract and retain the next generation of miners.



Compliance & Mining Technology Training

- An advisory committee made up of the Labor Commissioner, Vincennes University faculty and Indiana Coal Council members designed a 2 year mining technology program suited for both the coal and aggregate industry.
- Program flexibility will attract a wide range of students looking to develop skills in mechanical & electrical maintenance, supervisory, general production and health & safety.
- The miner training program has two parts which include a 40-hour program for compliance training and a 2 year associates degree in mining technology.
- Over the past 2 years there have been 4,500 students receive compliance safety training.



Funding & Outreach Program

- In an effort to “kick-start” the miner training initiative, Governor Daniels announced a \$30,000 state grant to attract new coal miners and students to the program.
- Additionally, the university is receiving a little over \$175,000 annually over a five year period, however, this is restricted to compliance training for miners. The grant was one of \$1.5 million awarded by MSHA to nine states.



Local high school science class field trip to SW Indiana Mine

- Funding from both the public and private sector will be crucial to the continued success of both compliance training and the 2 year technology program.
- A mining industry advisory board in conjunction with VU is currently working on a marketing plan for the Mining Technology Program as part of an “outreach effort” to target high schools, colleges and the under employed.

Lengthy Permitting Process

- Up to 40 million tons of potential and anticipated coal production is being held back because of delays in obtaining environmental permits and new safety regulations.

Federal

- MSHA refuse impoundment – 2 yr approval process
- Army Corps of Eng. wetland mitigation – Nationwide 21 permit if minimal impact; 404 permit if significant impact – 6 months to 3 years.
- MSHA underground permits – several months
 - slope construction
 - bottom development
 - roof control
 - ventilation



State

- DHPA (Division of Historic Preservation & Archaeology) – archaeology assessments – included in DNR permit.
- DNR-DOR (Dept. of Natural Resources/Div. of Reclamation) – mining permit – 1 yr
- IDEM – air and water permit – 90 days

Coal Markets Update

Price Outlook



ICAP United Inc -Coal Desk
An affiliation of ICAP Energy

July 1, 2008 ▪ Indiana Utility Regulatory Commission

WHO WE ARE...

- **Division of ICAP (IAP.L), world's largest interdealer financial broker**
- **ICAP Energy is a leader in natural gas, power, crude, coal, emissions, and other OTC energy products**
- **ICAP Energy bought United Power in 2005, and merged the domestic coal desks in 2007, using the name ICAP United**
- **Domestic coal desk made up of four brokers, headquartered in Louisville, KY - Dan Vaughn, Ian Tapsall, Manzar Iqbal, Matt Keck**

WHO ARE THE PLAYERS?

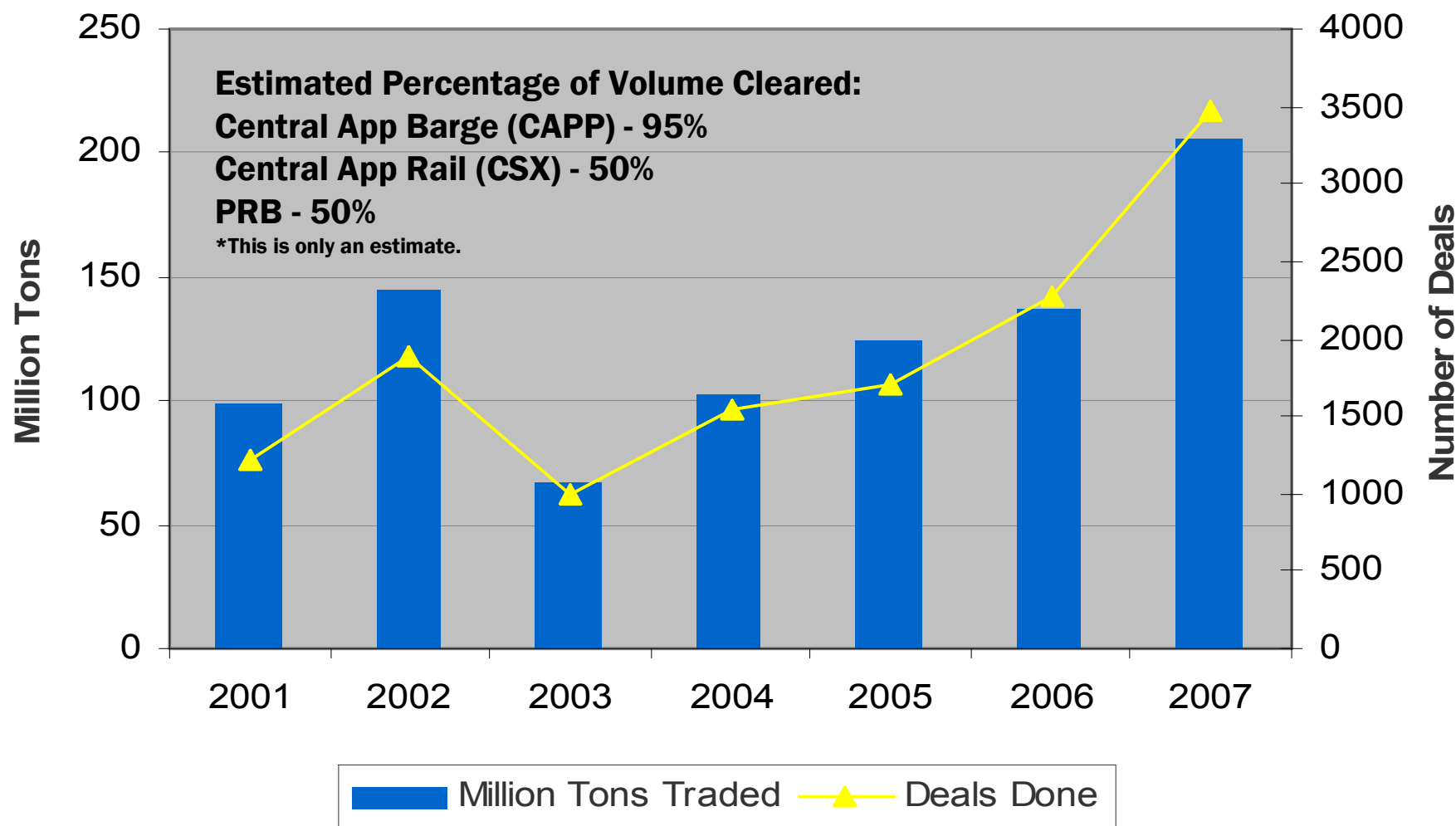
- **ICAP United brokered coal deals with 97 different counterparties in the past 12 months (Over 130 counterparties since 2001)**
- **23 Regulated Utilities, 13 Unregulated Utilities, 31 Producers, 21 Banks/Traders, 9 Coal Dealers**

HOW MUCH IS TRADING?



OTC Coal Volume By Year

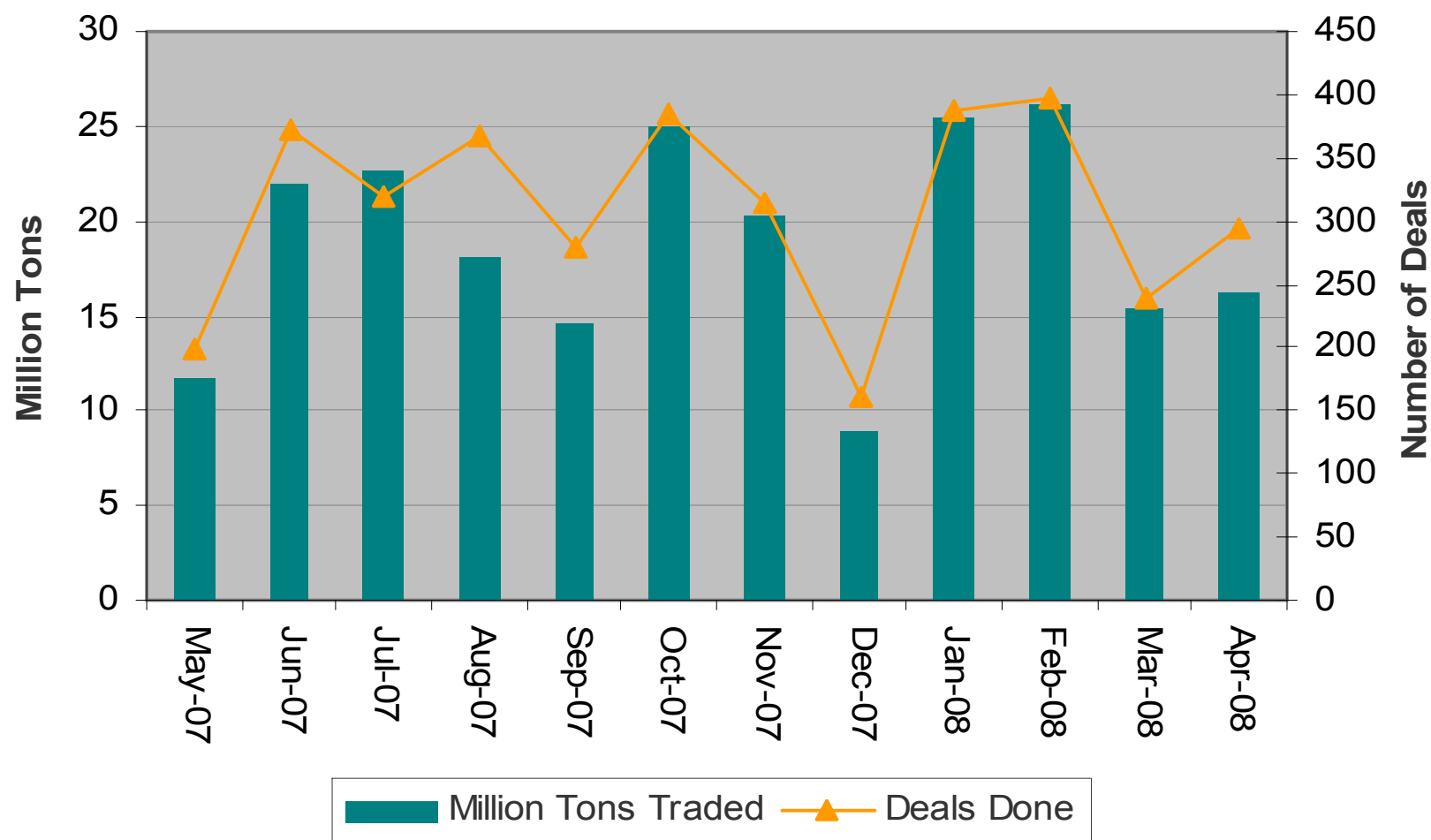
(All Reported Trades in Market)



HOW MUCH IS TRADING?

OTC Coal Volume Past 12 Months

(All Reported Trades in Market)



WHAT ARE THE PRIMARY PRODUCTS?

- **“Nymex” look-alike barge (Big Sandy River, 12000, 1.% Sulfur)**
 - ✓ Cleared and Physical

- **“PRB” (8800, 0.8 lbs SO₂/mmBTU, Rail)**
 - ✓ Cleared as financial swap against the Platts OTC broker index
 - ✓ Also trades physical using bilateral credit, and as physical index

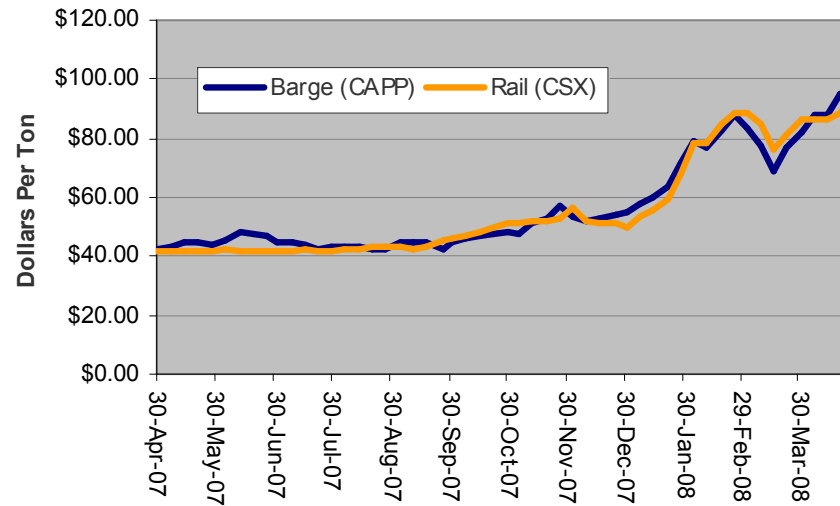
- **“Rail” (12500, 1.0% Sulfur, Big Sandy/Kanawha CSX)**
 - ✓ Cleared as financial swap against the Platts OTC broker index
 - ✓ Also trades physical using bilateral credit, and as physical index
 -coming soon*

- **“Illinois Basin Coal” (11500 5.0# Barge Coal – Lower Ohio)**
 - ✓ Is in Subcommittee Review with the Coal Trading Association

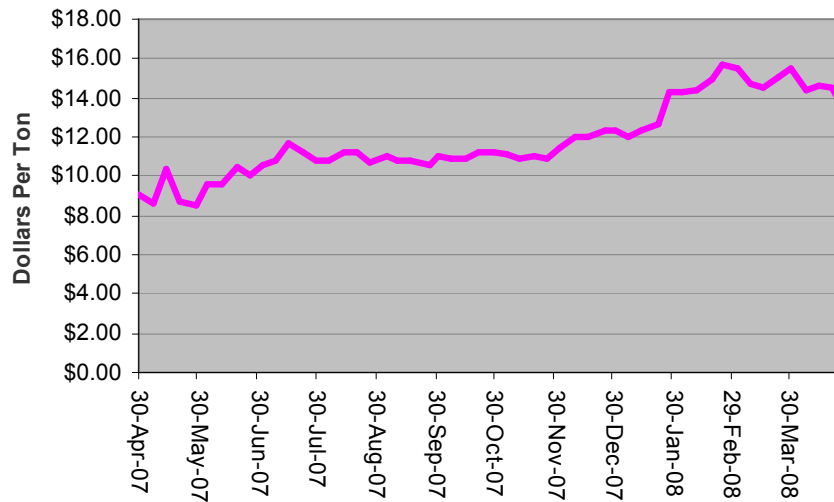
WHAT HAVE PRICES BEEN DOING?



Central App Coal Prices Past 12 Months

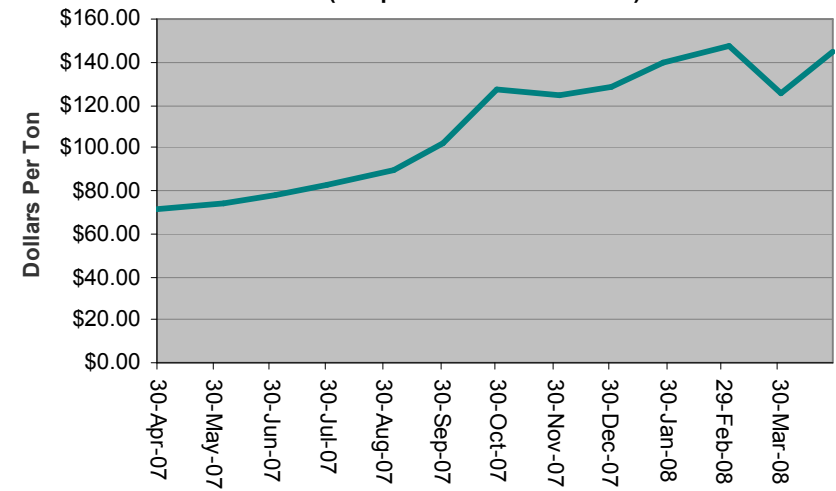


PRB Coal Prices Past 12 Months



API2 Coal Prices Past 12 Months

(European Coal Delivered ARA)



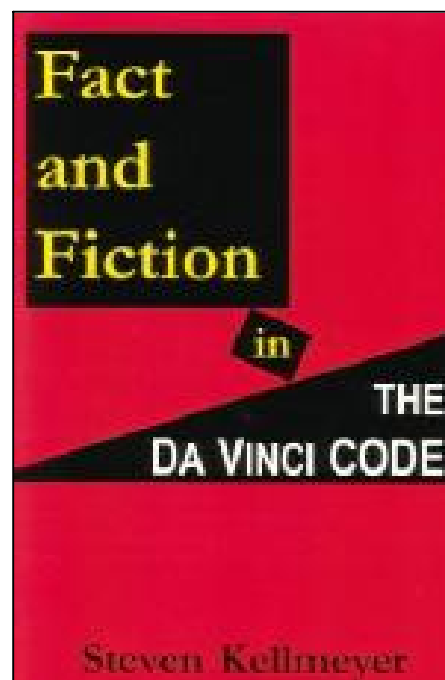
HOW NATURALS USE OTC TO HEDGE

- **Buy/Sell the physical (either prompt or 1-3 years out) for those that produce/burn matching product**
- **Buy/Sell the physical index to lock in coverage, and set the price later when advantageous or at delivery (for those with matching product)**
- **Buy/sell the closest match, either phys or financial, and offset position later**
- **Another idea: Structured financial swap**

OTHER BENEFITS OF OTC

- **Quick execution**
- **Liquidity not seen in direct market**
- **Clearing provides a good credit counterparty**
- **Provides price signals earlier than direct market**
- **Greatly impacts direct market**

FORWARD CURVE – FACT or FICTION



FORWARD CURVE: DEFINITION / COMPOSITION

- The compilation of prices of actual transactions for forward (future) delivery periods that are executed today
- For markets where limited transactions are reported, an assessment of the bid/ask spread is applied
 - a conservative approach is to use the bid side in bearish market (when long) and the ask side in a bullish market (when short)

PRICE FORECAST: DEFINITION / COMPOSITION

- Based on econometric modeling that incorporates supply and demand market conditions, fundamental cost structures, and return on capital.
 - Can be right, but usually wrong, because the forecast cannot be measured until it reaches the actual point of time at which point market conditions and cost structures have most likely changed

THE DIFFERENCE BETWEEN THE TWO

Forward Curves

- Changes hour by hour, day by day
- Always right
- Used for marked to market accounting
- Useless for planning purposes
- Time horizon depends on market liquidity

Price Forecasts

- Future prediction
- Changes quarterly or annually
- Cannot be used for market to market accounting
- Useful for planning
- Projections up to 20 years are common

Illustration from *The Coal Trading Handbook*

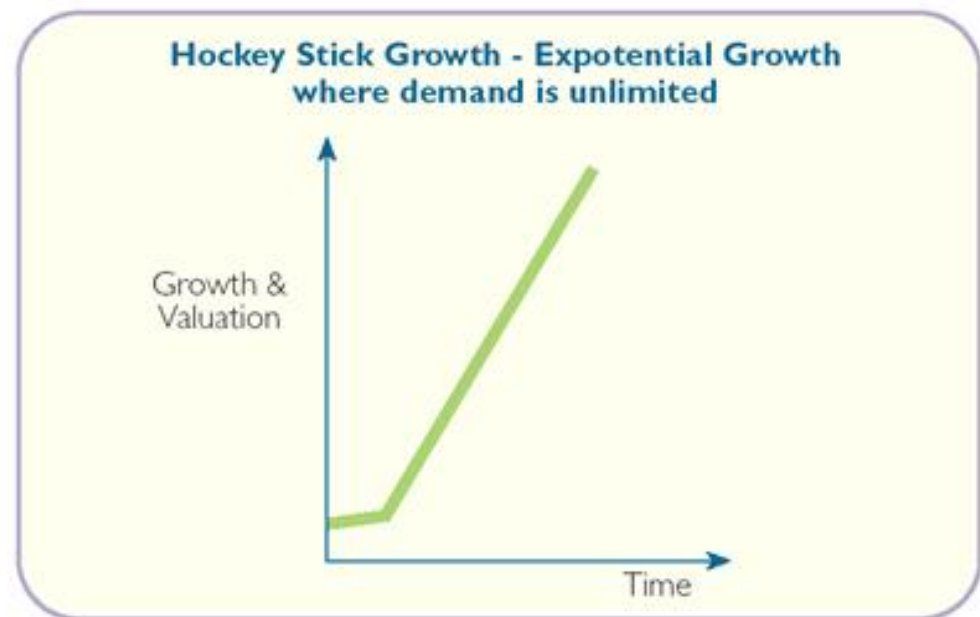
Hill & Associates, Doyle Trading Consultants

IN THEORY, CURVES SHOULD BE CONTANGO

- Spot (current) market price
- Plus
 - Cost of storage
 - Real costs increases
 - Inflation
 - Time value of money

However, near term supply constraints will cause curve to invert until demand pressures eases

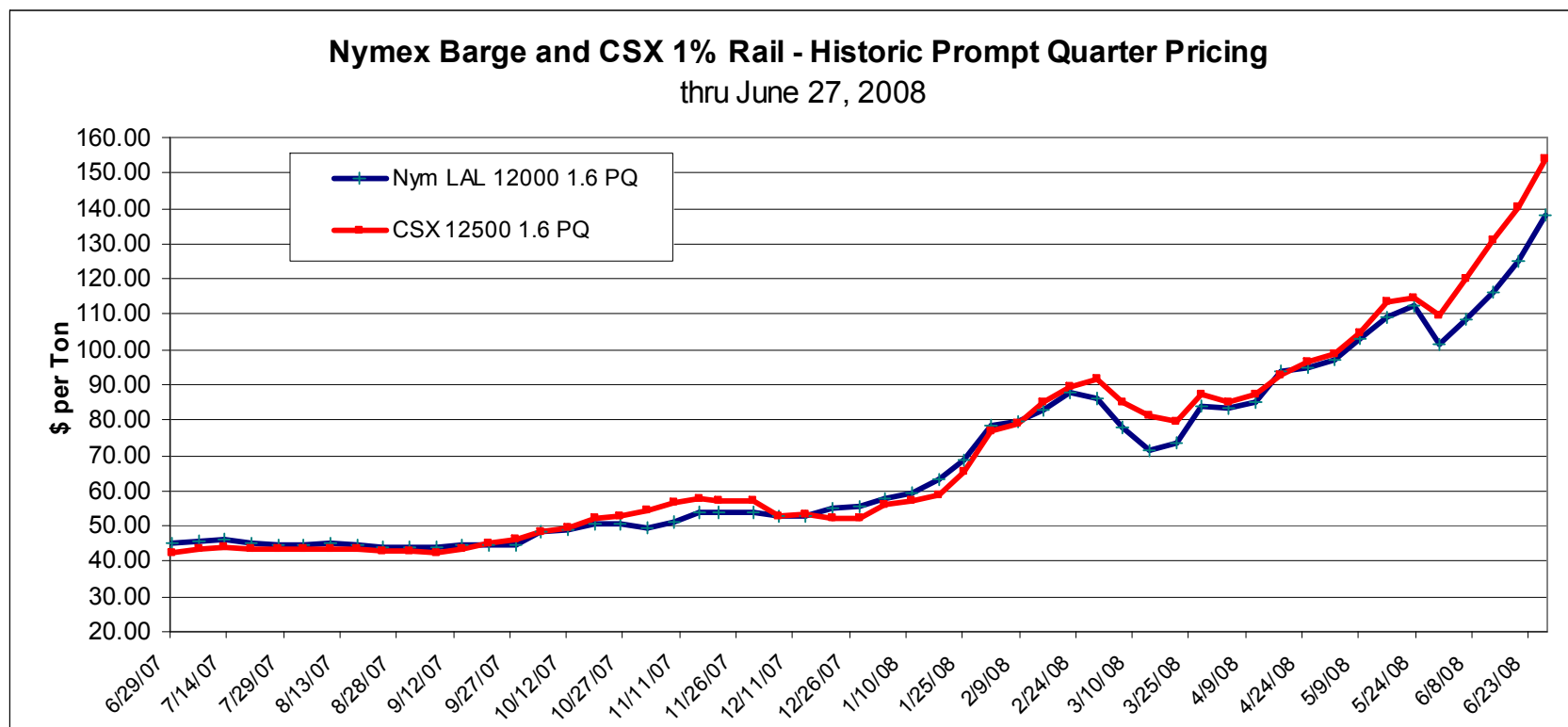
PRICE FORECAST



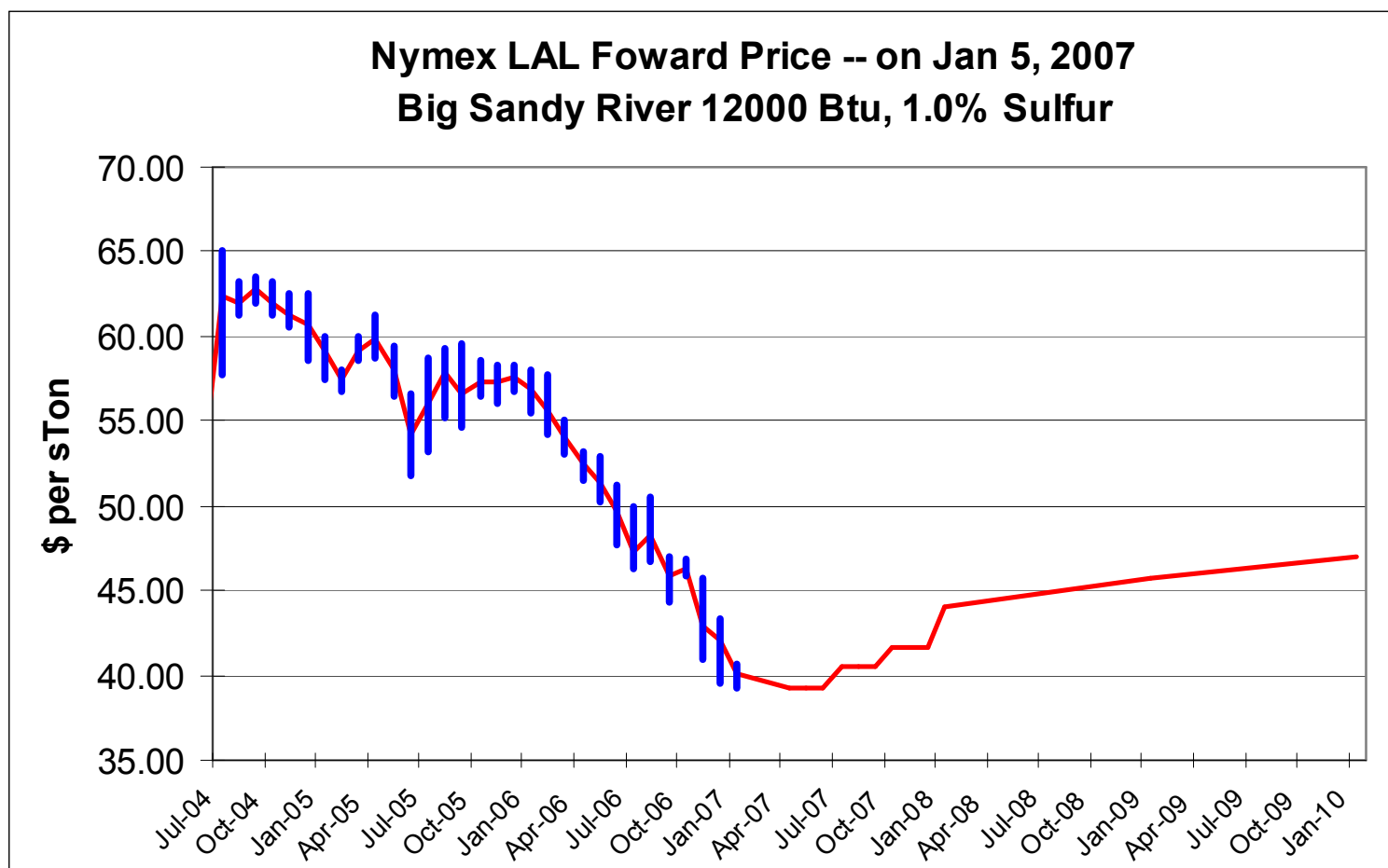
TAKING A LOOK AT THE CURVES



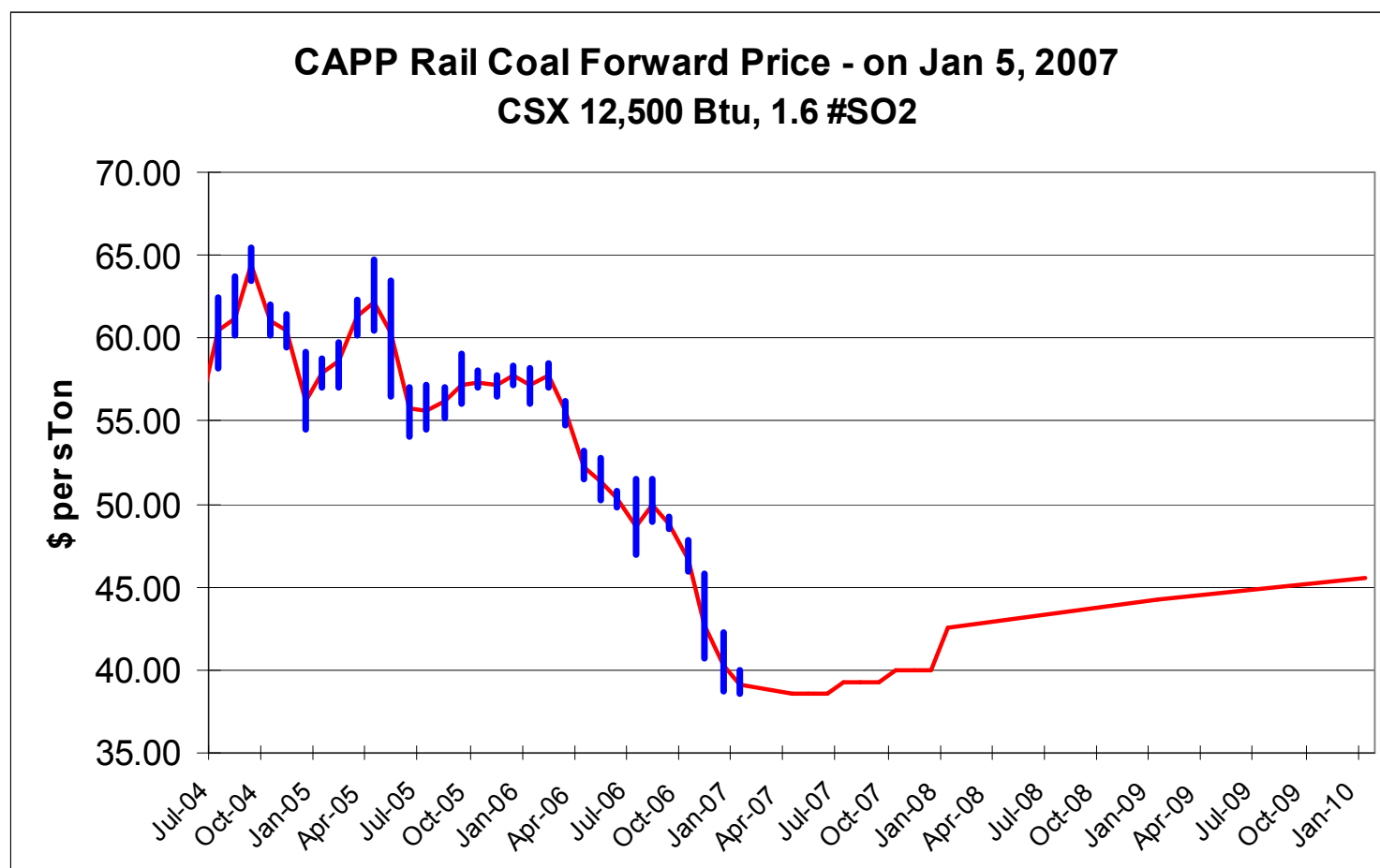
HISTORIC CAPP PRICES



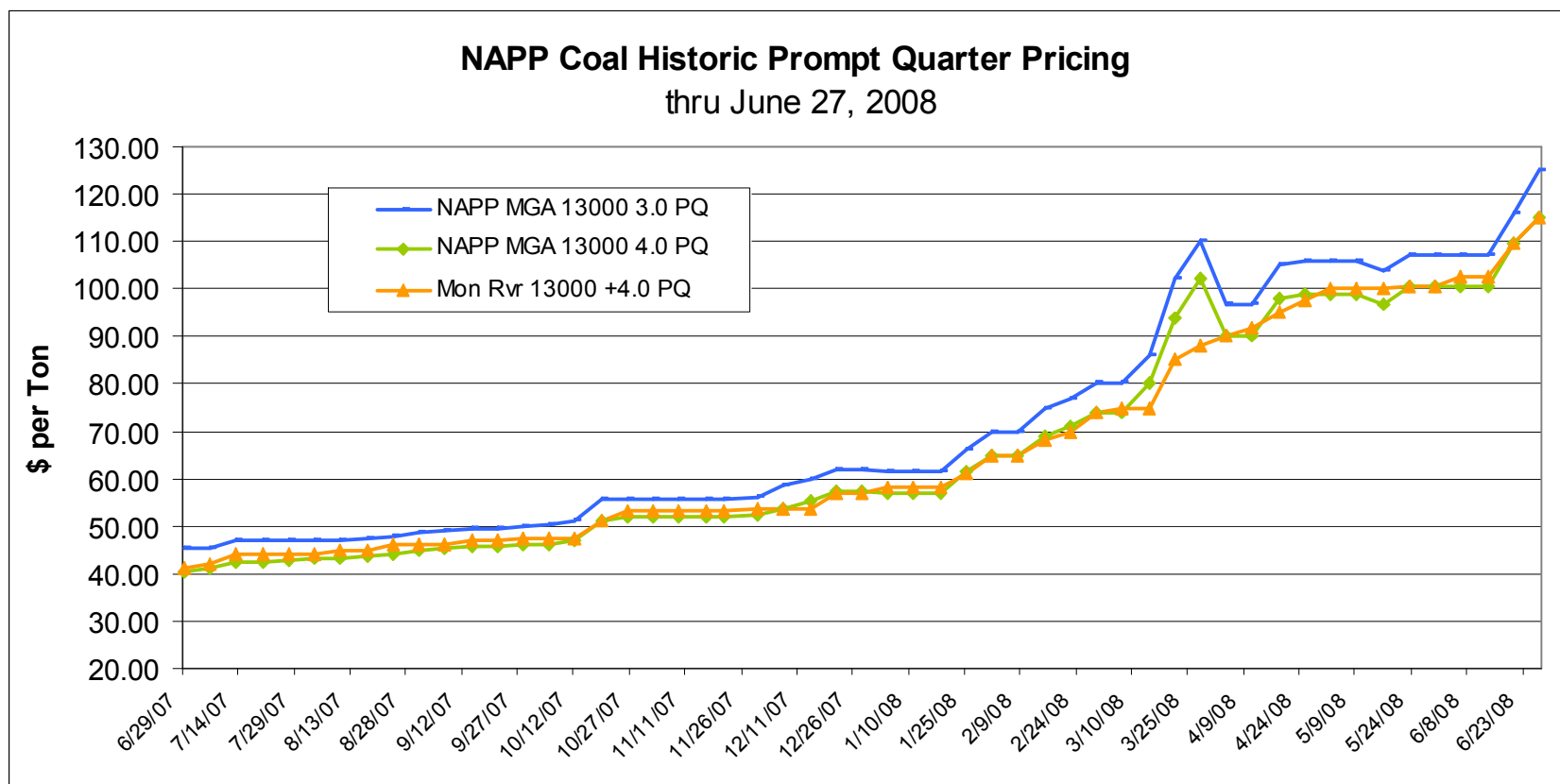
NYMEX BARGE FORWARD CURVE



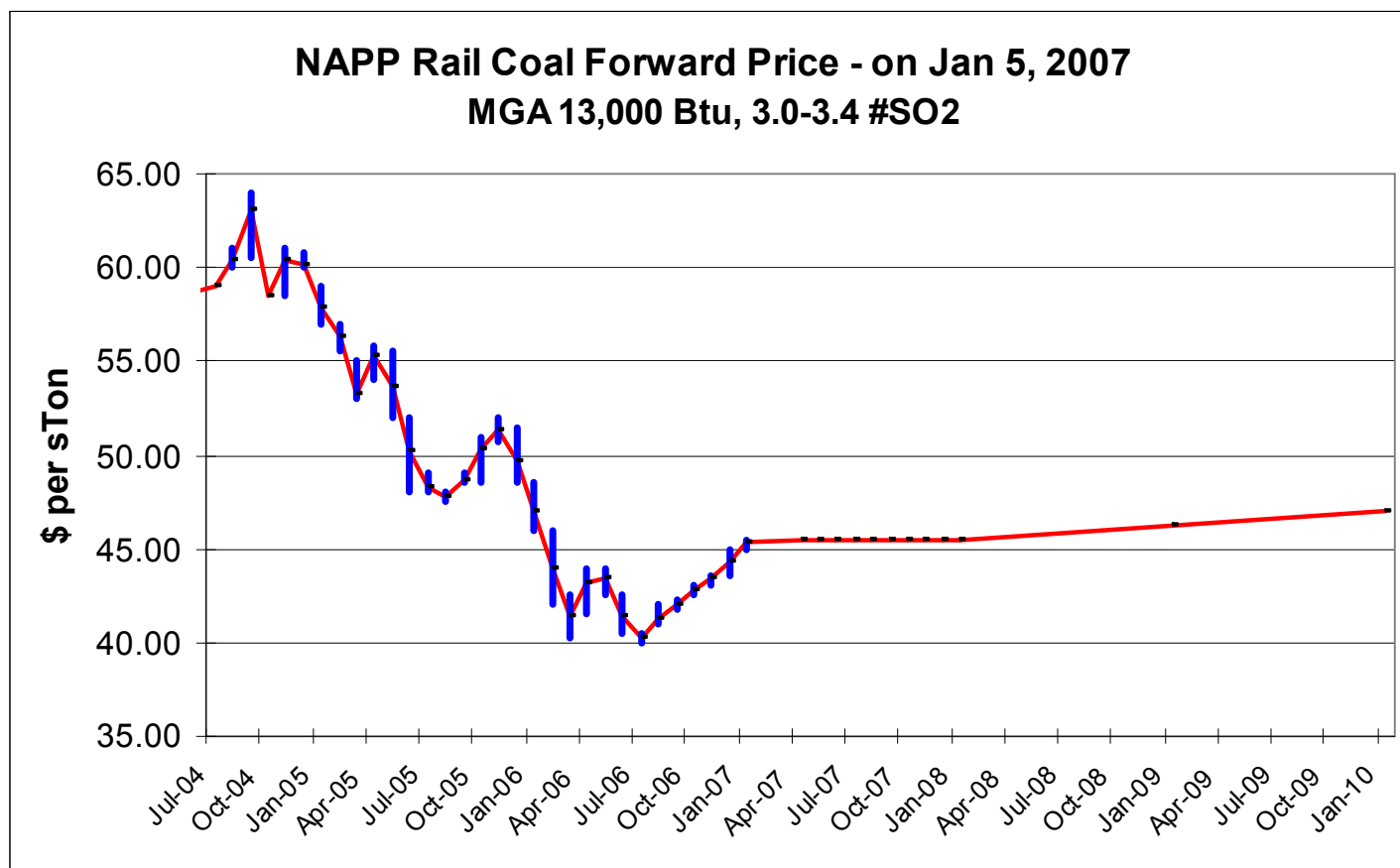
CAPP RAIL COAL FORWARD CURVE



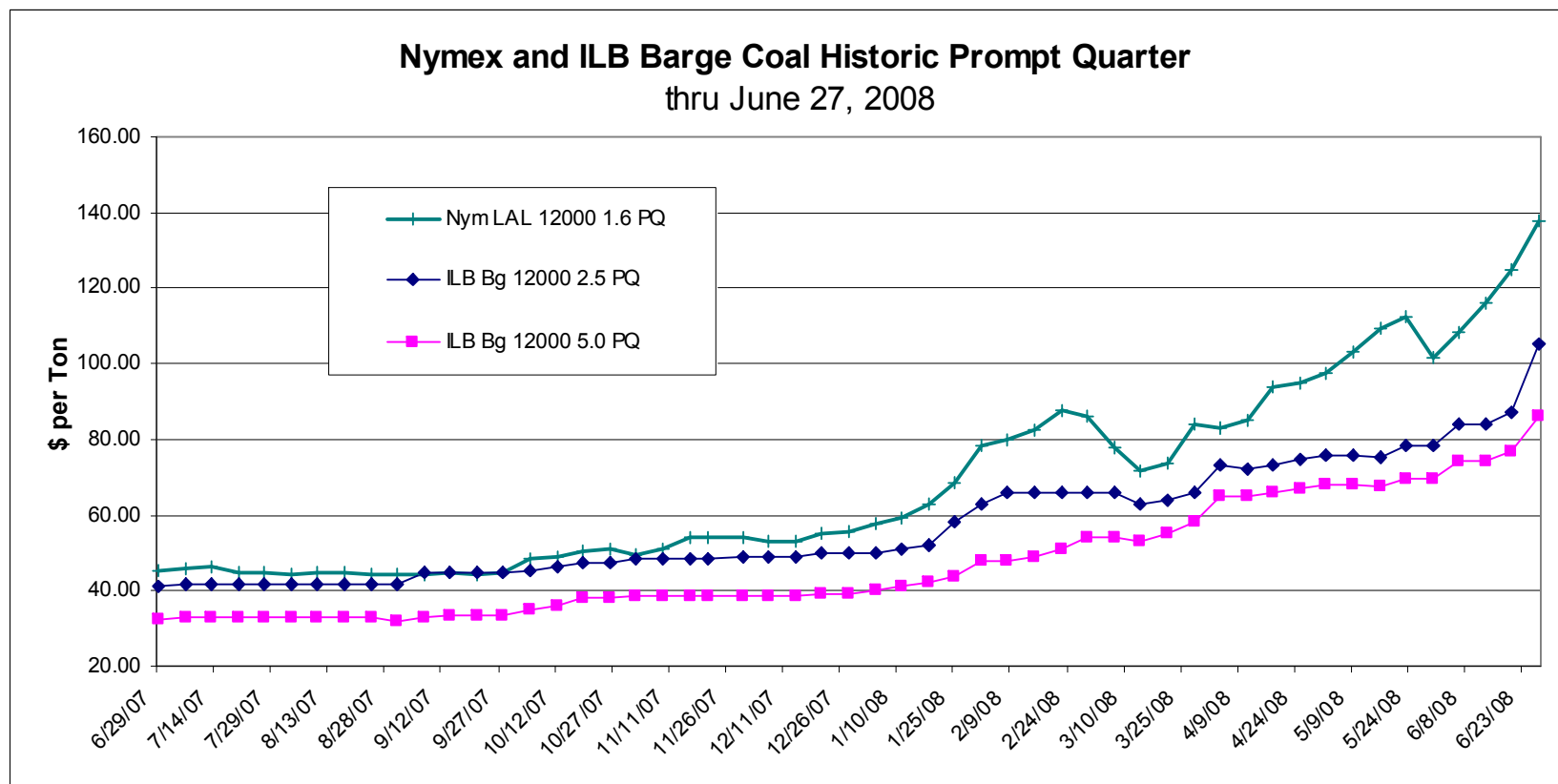
HISTORIC NAPP PRICES



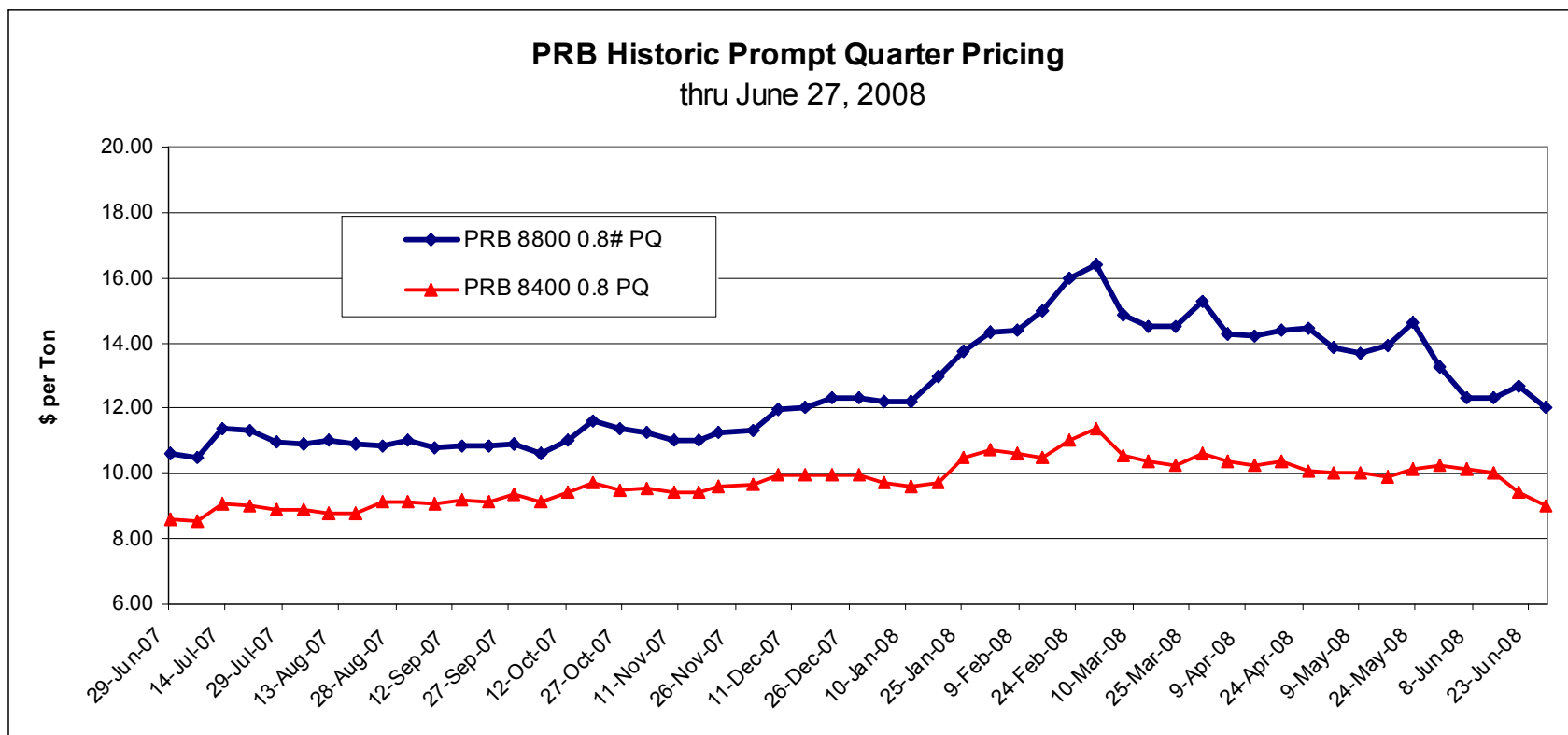
NAPP COAL FORWARD CURVE



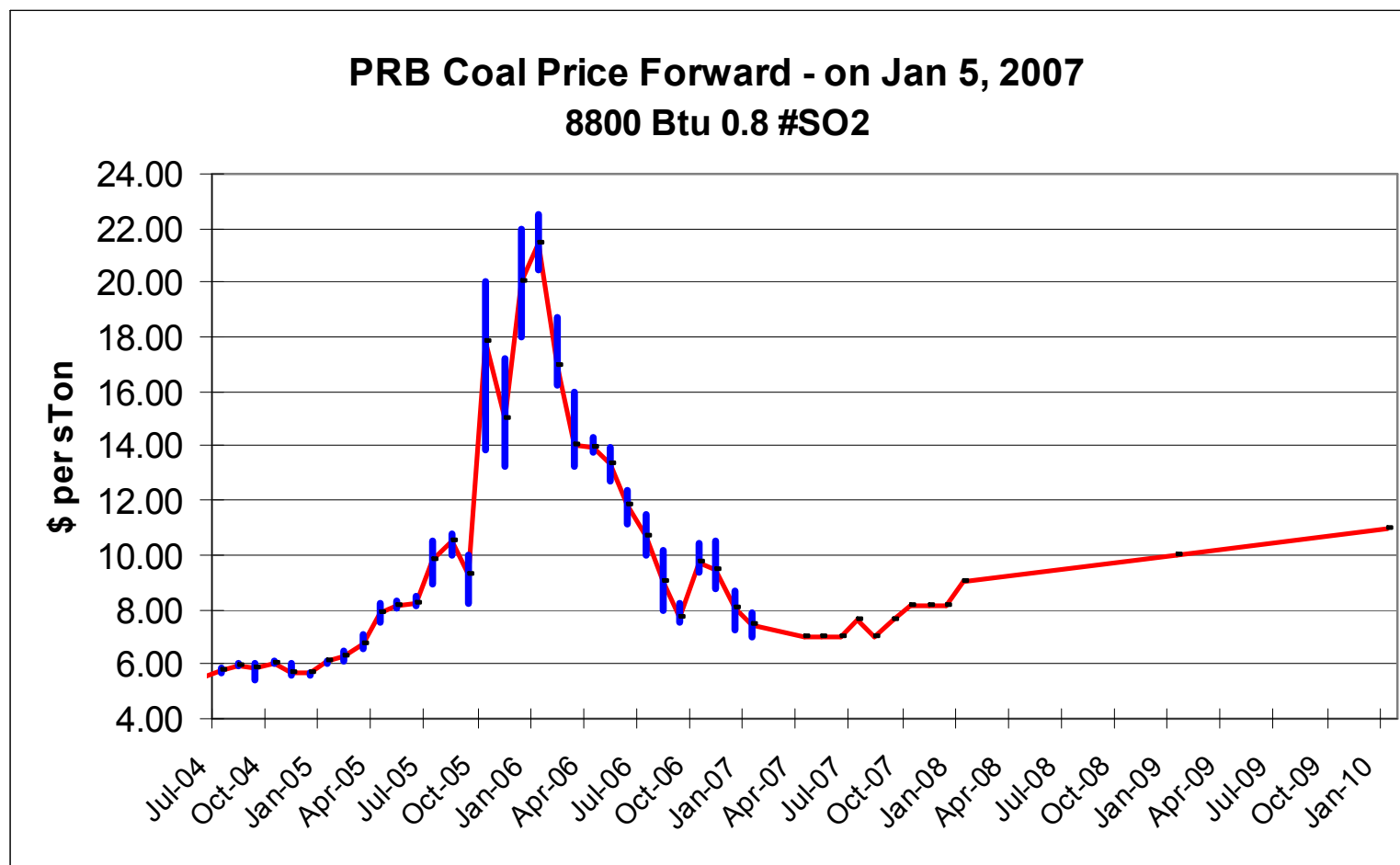
HISTORIC ILB PRICES



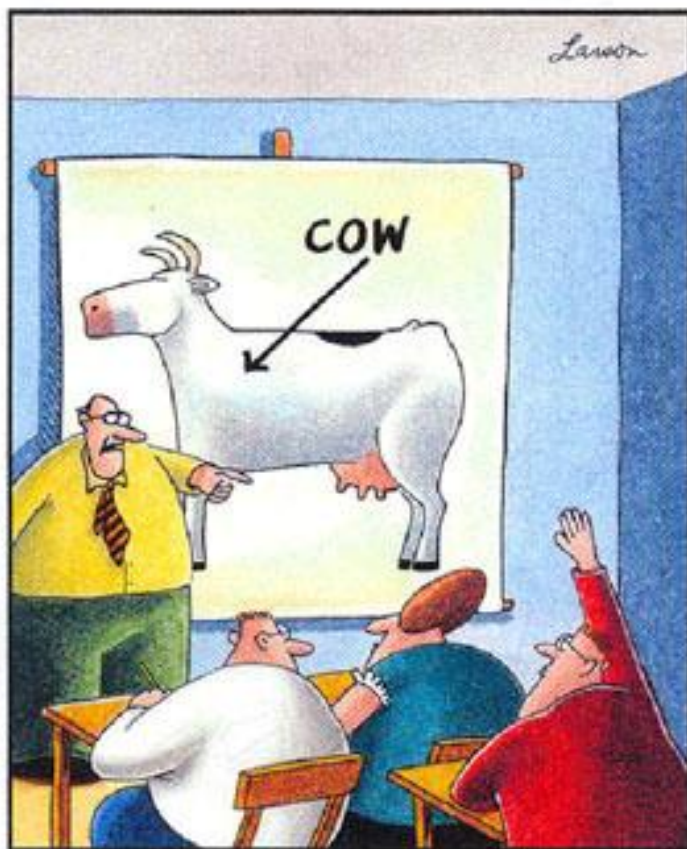
Historic PRB Pricing



HISTORIC PRB FORWARD CURVE



CURVE VALIDATION



"Yes ... I believe there's a question in the back."

- Bid / Ask Markets
- Reported OTC Trades
- In-house Non-reported Trades
- One-off Market Brokered Deals
- RFP Offers and Bid Results
- Accurate Market Intelligence
- Measured Consistency

...IN CLOSING



**"Prediction is very difficult,
especially if it's about the future."**
--Nils Bohr, Nobel laureate in Physics

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Charles Zebula

Hedging Opportunities

- Recent producer behavior
 - Less interested in “long-term” fixed price
 - Willing to sell volume, but with price re-openers
 - Negotiating contracts can be a “long” process
- New investment may provide some long-term opportunities
 - Depends on producer risk tolerance
 - May tie up pricing “beyond” true replacement costs
 - Costs of new development is significant
 - Market prices are higher than “reasonable” returns
- Buying coal in the OTC/financial markets offer an opportunity to mitigate price risks

Hedging Opportunities

- OTC/financial markets
 - Standard products trade – NYMEX, CSX Rail, PRB
 - Many coal qualities now “correlated”
 - Liquidity has improved over the past years
 - More standard terms and conditions
 - Offers credit counterparty diversity
- Simple Example
 - Contract price reopeners
- Hedging
 - Is not “speculating” – accounting provisions are strict
 - Does not guarantee lower prices
 - Offers ability to create price certainty and reduce volatility
 - Need regulatory certainty

